

01/17/14 Agenda

- Review Worksheet 5.4 - Point-Slope Form
- Finish Section 5.4 - Point Slope Form of a linear equation
- Section 5.5 - Standard Form of a linear equation
- Homework - Worksheet 5.5
- Tuesday - Review
- **Wednesday 01/22 - Quiz on 5.4-5.5**

Warm Up

$$(y - y_1) = m(x - x_1)$$

WRITE IN POINT-SLOPE FORM

$$m = -\frac{3}{4} \quad (1, 3)$$

$$y - 3 = -\frac{3}{4}(x - 1)$$

$$m = 2 \quad (4, -5)$$

$$y - (-5) = 2(x - 4)$$

$$y + 5 = 2(x - 4)$$

5.4 - Standard Form of a Linear Equation

Target 5F

Forms of a Linear Equation:

Slope-Intercept Form: $y = mx + b$

Point-Slope Form: $(y - y_1) = m(x - x_1)$

Standard Form: $Ax + By = C$

5.4 - Standard Form of a Linear Equation

Target 5F

Compare Forms:	<p>Slope-Intercept Form (SIF): $y = mx + b$</p> <p>Point-Slope Form (PSF): $(y - y_1) = m(x - x_1)$</p>
Put equation into SF:	<p>Standard Form (SF): $Ax + By = C$</p> <ol style="list-style-type: none"> 1. X and Y are on the left. 2. A, B, and C are whole numbers (integers), NO fractions. 3. No GCFs, (no numbers in common between factors). 4. A and B are NOT zero. 5. The first number is usually positive. <p>This is the opposite of solving for y and putting it into SIF:</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> $Ax + By = C$ $1y = -2x + 3$ <hr style="width: 50%; margin: 0 auto;"/> $+2x$ <hr style="width: 50%; margin: 0 auto;"/> $2x + 1y = +3$ $2x + y = 3$ $y - 1 = \frac{1}{2}(x + 2)$ </div> <div style="text-align: center;"> $y = \frac{1}{3}x - 4$ <hr style="width: 50%; margin: 0 auto;"/> $+\frac{1}{3}x$ <hr style="width: 50%; margin: 0 auto;"/> $3\left(\frac{1}{3}x + y\right) = (-4)3$ $x + 3y = -12$ </div> </div>
You try:	<div style="display: flex; justify-content: space-around;"> $y = -6x - 3$ $y + 1 = -2(x + 7)$ </div>

5.5 - Standard Form of a Linear Equation

Target 5F

Graphing
SF:

Method 1 - Rearrange into Slope-Intercept Form & graph:

$$m = \frac{-A}{B}$$

$$b = \frac{C}{B}$$

$$A \quad B \quad C \quad Y = mX + b$$

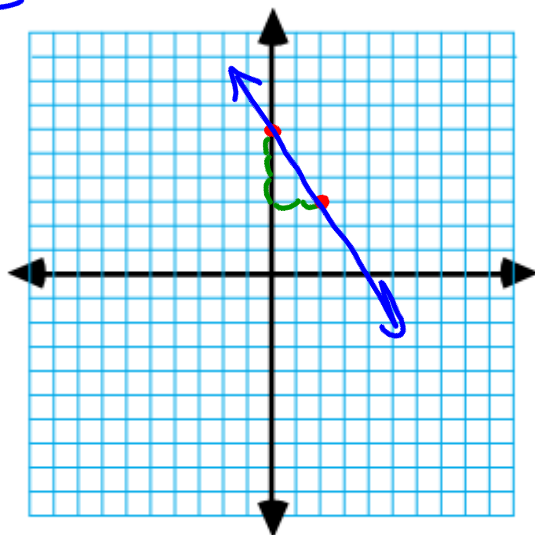
$$+3x + 2y = 12$$

$$\frac{-3x}{2} \quad \frac{-3x}{2}$$

$$\frac{2y}{2} = \frac{-3x + 12}{2}$$

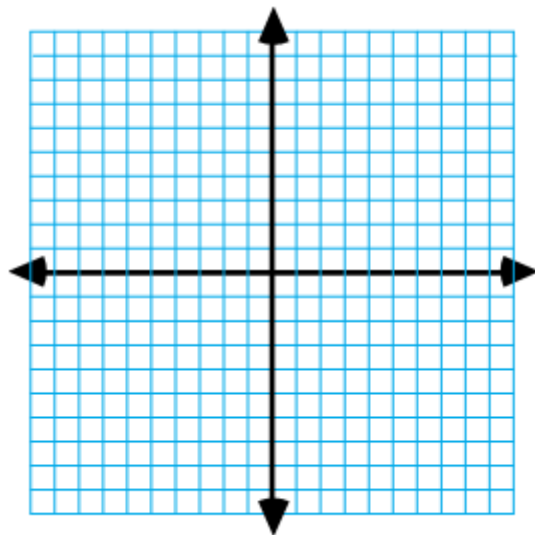
$$y = \frac{-3}{2}x + 6$$

$$m = \frac{-3}{2} \rightarrow b = +6$$



You try:

$$x + 3y = -6$$



5.5 - Standard Form of a Linear Equation

Target 5F

Graphing
SF:

Method 2 - Use short cuts:

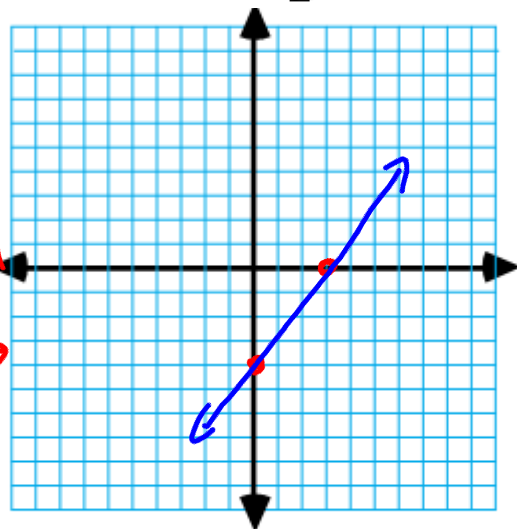
$$m = \frac{-A}{B}; b = \frac{C}{B}$$

$$\begin{matrix} A & B & C \\ 8x - 6y = 24 \end{matrix}$$

$$\begin{array}{r} 8x - 6y = 24 \\ -8x \\ \hline -6y = -8x + 24 \\ \div -6 \\ \hline y = \frac{4}{3}x - 4 \end{array}$$

$$m = \frac{-A}{B} = \frac{-8}{-6} = \frac{4}{3}$$

$$b = \frac{C}{B} = \frac{24}{-6} = -4$$



You try:

$$-3x + 2y = -8$$

